

## **REMARKS/ARGUMENTS**

Original claims 1 – 12 have been cancelled

New claims 13 – 65 are submitted for the Examiner's consideration.

Original claims 1 – 7 and 10 – 12 were rejected under 35 USC §102 as being anticipated by U.S. Patent No. 5,724,241 to G.W. Wood et al.

Original claims 8 and 9 were rejected under 35 USC §103(a) as unpatentable over Wood et al.

One facet of applicant's invention includes a **network** of signal processing and communication modules that are connected to **receive and retransmit** discrete packets of digital data bits. Within this network of signal processing modules are numerous seismic data acquisition modules (RAM). Applicants' specification characterizes seismic data acquisition module by the acronym RAM for Remote Acquisition Module. Each RAM receives the seismic signal emissions of one or more seismic sensors. Applicant's specification paragraph [0035]. From the seismic sensor signals, the RAMs digitally characterize: 1) the amplitude value of a seismic wave at the instant of receipt; and 2) the time (i.e. instant) of seismic wave receipt (as determined by a module associated first clock) for network transmission to a central recording (or processing) unit (CRU). Specification paragraph [0007]. Additionally, many, if not all of the RAMs are served by a Global Positioning System (GPS) receiver to precisely characterize the geographic location of the respective RAM for digital transmission along said **network** to a master GPS receiver. Specification paragraphs [0045] and [0047].

Distinctively, the data packet transmission route from a particular seismic data acquisition module to a CRU or master GPS may include **serial** receipt and retransmission by one or more **other** signal processing units. A single CRU may be served by a plurality of these serial data transmission routes. Specification paragraph [0028] and [0035].

Typically, the **other** "signal processing units" between a data packet generating RAM and a CRU is another RAM. However, line tap units and base line modules also serve as other "signal processing units". Specification paragraph

[0042]. Each of these intermediate data acquisition or data processing modules receive a data packet through one conductor channel and retransmit the data packet along another conductor channel to a successive signal processing unit. Collectively, these several conductor channels between the first RAM and the CRU are characterized as the **data transmission route**.

By the **same data transmission route, flowing in a direction opposite from the data packets**, the CRU transmits time synchronization signals toward the originating RAM. The time synchronization signals are originated by the CRU based upon the time of a second clock (a master clock) that is independently associated with the central data recording unit. Upon receipt of the synchronization signal, the RAM processes the synchronization signal to coordinate or correct the first clock time. Specification paragraph [0078]

In like manner, the RAM associated GPS receivers receive corrected location coordinates from the master GPS receiver along the **data transmission route**. Specification paragraph [0058]. Satellite tracking assistance information may also flow within the network from the master GPS receiver to the remote GPS receivers and GPS tracking data may flow in the reverse directing to the master GPS receiver data. Specification paragraphs [0054 – 0057].

The Wood et al patent, cited by the Examiner as prior art justification for rejecting Applicants' original claims, discloses a seismic data acquisition system having a multiplicity of "autonomous data acquisition modules" (ADAM). The Wood et al disclosure uses the term "autonomous" to describe a stand-alone data receiving and recording unit. Wood et al specification col. 5, lines 50-53. **The Wood et al system does not provide for direct transmission of seismic data from a field positioned ADAM connected to seismic sensors the field of acquisition deployed at the acquisition site (the field of acquisition).** The Examiner's attention is respectfully directed to the following statement from column 9, line 60 through column 10, line 3 of the Wood et al specification.

"All of the above steps are concerned with data gathering. The data so

gathered must be harvested at the end of some designated operational period which may be days or even weeks after commencement of the original field work. To that end, the field emplacement **engineers disconnect and remove the sensor arrays to storage. The ADAMs are collected and returned to an operations base station**, which may be a semi-fixed installation, where the ADAMs are **coupled for servicing and data harvesting to a Transcription and Processing System (TAPS).**”

“In operation, as above suggested, the ADAM **receives and stores** data continuously during data-collection time windows or recording frame of some desired length as determined by precision satellite timing”. Wood et al column 7, lines 46-49.

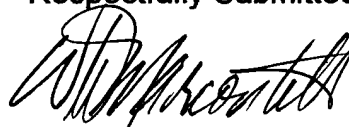
In a simple summary, the Wood et al disclosure **does not** communicate data to a CRU over an interconnected **network** as presently described by Applicant’s new claims 13 – 65. Applicant’s new claims describe a two-way reporting network of data processing modules including RAMs and GPS receivers. Time stamped seismic data is relay transmitted to a CRU along the same transmission route that carries clock synchronization signals outward from the CRU. In like manner, GPS receivers associated with respective RAMs provide location related data for RAM transmission along the transmission route to the master GPS. Responsively, the more accurate master GPS returns corrected location data in reverse direction along the transmission route to the field distributed GPS receivers.

Clearly, therefore, the Woods et al patent has no teaching relevance to Applicant’s invention as presently claimed. Although the Wood et al describes a seismic data acquisition “network”, in a strained sense of the word definition, the Wood et al “network” bears no resemblance to the seismic data acquisition **network** presently described by Applicants’ new and amended claims. Hence, Applicants’ respectfully request the Examiner’s favorable reconsideration of their invention as now described by Applicant’s new and amended claims.

In aid of the Examiner's efforts to identify the prior art most relevant to the claimed invention, Applicant's are herewith identifying additional references recently brought to their attention. The April, 1999, *RECORDER* article by Kevin Pelletier titled "3-D SEISMIC ACQUISITION TECHNIQUES IN CULTURALLY DIFFICULT AREAS" is of particular interest as including an explanation of the difference between traditional seismic data (as of the publication date) and the newly evolving "network" transmission techniques. The present invention is not claiming the "network" technique.

In view of the foregoing amendments, remarks and arguments, Applicants respectfully request the Examiner's allowance of new claims 13 – 65.

Respectfully Submitted,



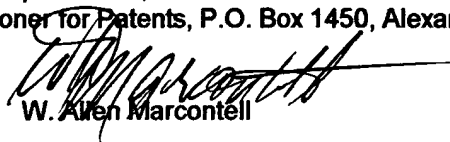
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